

SEQUENCE LISTING

<110> Haruo Sugiyama
Chugai Seiyaku Kabushiki Kaisha
Sumitomo Pharmaceuticals Company, Limited

<120> HLA-A24-RESTRICTED CANCER ANTIGEN PEPTIDES

<130> 540883HT

<140> PCT/JP03/07463

<141> 2003-06-12

<150> JP 2002-171518

<151> 2002-06-12

<150> JP 2002-275572

<151> 2002-09-20

<160> 68

<210> 1

<211> 449

<212> PRT

<213> Homo sapiens

<400> 1

Met Gly Ser Asp Val Arg Asp Leu Asn Ala Leu Leu Pro Ala Val Pro
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Ser Leu Gly Gly Gly Gly Cys Ala Leu Pro Val Ser Gly Ala Ala
20 25 30

Gln Trp Ala Pro Val Leu Asp Phe Ala Pro Pro Gly Ala Ser Ala Tyr
35 40 45

Gly Ser Leu Gly Gly Pro Ala Pro Pro Pro Ala Pro Pro Pro Pro Pro
50 55 60

Pro Pro Pro Pro His Ser Phe Ile Lys Gln Glu Pro Ser Trp Gly Gly
65 70 75 80

Ala Glu Pro His Glu Glu Gln Cys Leu Ser Ala Phe Thr Val His Phe
85 90 95

Ser Gly Gln Phe Thr Gly Thr Ala Gly Ala Cys Arg Tyr Gly Pro Phe
100 105 110

Gly Pro Pro Pro Pro Ser Gln Ala Ser Ser Gly Gln Ala Arg Met Phe
 115 120 125

Pro Asn Ala Pro Tyr Leu Pro Ser Cys Leu Glu Ser Gln Pro Ala Ile
 130 135 140

Arg Asn Gln Gly Tyr Ser Thr Val Thr Phe Asp Gly Thr Pro Ser Tyr
 145 150 155 160

Gly His Thr Pro Ser His His Ala Ala Gln Phe Pro Asn His Ser Phe
 165 170 175

Lys His Glu Asp Pro Met Gly Gln Gln Gly Ser Leu Gly Glu Gln Gln
 180 185 190

Tyr Ser Val Pro Pro Pro Val Tyr Gly Cys His Thr Pro Thr Asp Ser
 195 200 205

Cys Thr Gly Ser Gln Ala Leu Leu Leu Arg Thr Pro Tyr Ser Ser Asp
 210 215 220

Asn Leu Tyr Gln Met Thr Ser Gln Leu Glu Cys Met Thr Trp Asn Gln
 225 230 235 240

Met Asn Leu Gly Ala Thr Leu Lys Gly Val Ala Ala Gly Ser Ser Ser
 245 250 255

Ser Val Lys Trp Thr Glu Gly Gln Ser Asn His Ser Thr Gly Tyr Glu
 260 265 270

Ser Asp Asn His Thr Thr Pro Ile Leu Cys Gly Ala Gln Tyr Arg Ile
 275 280 285

His Thr His Gly Val Phe Arg Gly Ile Gln Asp Val Arg Arg Val Pro
 290 295 300

Gly Val Ala Pro Thr Leu Val Arg Ser Ala Ser Glu Thr Ser Glu Lys
 305 310 315 320

Arg Pro Phe Met Cys Ala Tyr Pro Gly Cys Asn Lys Arg Tyr Phe Lys
 325 330 335

Leu Ser His Leu Gln Met His Ser Arg Lys His Thr Gly Glu Lys Pro
 340 345 350

Tyr Gln Cys Asp Phe Lys Asp Cys Glu Arg Arg Phe Ser Arg Ser Asp
 355 360 365

Gln Leu Lys Arg His Gln Arg Arg His Thr Gly Val Lys Pro Phe Gln
 370 375 380

Cys Lys Thr Cys Gln Arg Lys Phe Ser Arg Ser Asp His Leu Lys Thr
 385 390 395 400

His Thr Arg Thr His Thr Gly Lys Thr Ser Glu Lys Pro Phe Ser Cys
 405 410 415

Arg Trp Pro Ser Cys Gln Lys Lys Phe Ala Arg Ser Asp Glu Leu Val
 420 425 430

Arg His His Asn Met His Gln Arg Asn Met Thr Lys Leu Gln Leu Ala
 435 440 445

Leu

<210> 2

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic Peptide

<400> 2

Arg Tyr Phe Pro Asn Ala Pro Tyr Leu

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<210> 3

<211> 9

<212> PRT

<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic Peptide

<400> 3

Arg Tyr Pro Gly Val Ala Pro Thr Leu

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<210> 4

<211> 9

<212> PRT

<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic Peptide

<400> 4

Arg Tyr Pro Ser Cys Gln Lys Lys Phe
1 5

<210> 5

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic Peptide

<400> 5

Ala Tyr Leu Pro Ala Val Pro Ser Leu
1 5

<210> 6

<211> 9

<212> PRT

<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic Peptide

<400> 6

Asn Tyr Met Asn Leu Gly Ala Thr Leu
1 5

<210> 7

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic Peptide

<400> 7

Arg Val Pro Gly Val Ala Pro Thr Leu
1 5

<210> 8
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<212> PRT
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic Peptide

<400> 8
Arg Met Phe Pro Asn Ala Pro Tyr Leu
1 5

<210> 9
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Peptide

<400> 9
Arg Trp Pro Ser Cys Gln Lys Lys Phe
1 5

<210> 10
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Peptide

<400> 10
Gln Tyr Arg Ile His Thr His Gly Val Phe
1 5 10

<210> 11
<211> 10
<212> PRT
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic Peptide

<400> 11
Ala Tyr Pro Gly Cys Asn Lys Arg Tyr Phe
1 5 10

<210> 12
<211> 9
<212> PRT
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic Peptide

<400> 12
Arg Tyr Phe Pro Asn Ala Pro Tyr Phe
1 5

<210> 13
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<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Peptide

<400> 13
Arg Tyr Phe Pro Asn Ala Pro Tyr Trp
1 5

<210> 14
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Peptide

<400> 14
Arg Tyr Phe Pro Asn Ala Pro Tyr Ile
1 5

<210> 15
<211> 9
<212> PRT
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic Peptide

<400> 15

Arg Tyr Phe Pro Asn Ala Pro Tyr Met
1 5

<210> 16

<211> 9

<212> PRT

<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic Peptide

<400> 16

Arg Tyr Pro Gly Val Ala Pro Thr Phe
1 5

<210> 17

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic Peptide

<400> 17

Arg Tyr Pro Gly Val Ala Pro Thr Trp
1 5

<210> 18

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic Peptide

<400> 18

Arg Tyr Pro Gly Val Ala Pro Thr Ile
1 5

<210> 19
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Peptide
<400> 19
Arg Tyr Pro Gly Val Ala Pro Thr Met
1 5

<210> 20
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Peptide
<400> 20
Arg Tyr Pro Ser Cys Gln Lys Lys Trp
1 5

<210> 21
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Peptide
<400> 21
Arg Tyr Pro Ser Cys Gln Lys Lys Leu
1 5

<210> 22
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Peptide
<400> 22
Arg Tyr Pro Ser Cys Gln Lys Lys Ile

1 5

<210> 23
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Peptide

<400> 23
Arg Tyr Pro Ser Cys Gln Lys Lys Met
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<210> 24
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Peptide

<400> 24
Ala Tyr Leu Pro Ala Val Pro Ser Phe
1 5

<210> 25
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Peptide

<400> 25
Ala Tyr Leu Pro Ala Val Pro Ser Trp
1 5

<210> 26
<211> 9
<212> PRT
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic Peptide

<400> 26

Ala Tyr Leu Pro Ala Val Pro Ser Ile
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<210> 27

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic Peptide

<400> 27

Ala Tyr Leu Pro Ala Val Pro Ser Met
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<210> 28

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic Peptide

<400> 28

Asn Tyr Met Asn Leu Gly Ala Thr Phe
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<210> 29

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic Peptide

<400> 29

Asn Tyr Met Asn Leu Gly Ala Thr Trp
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<210> 30

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic Peptide

<400> 30

Asn Tyr Met Asn Leu Gly Ala Thr Ile

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5

<210> 31

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic Peptide

<400> 31

Asn Tyr Met Asn Leu Gly Ala Thr Met

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5

<210> 32

<211> 21

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic Peptide

<400> 32

Phe Asn Asn Phe Thr Val Ser Phe Trp Leu Arg Val Pro Lys Val Ser

1

5

10

15

Ala Ser His Leu Glu

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<210> 33

<211> 3857

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: The DNA region from position 1 to position 1550 is derived from human, and the DNA region from position 1551 to position 3857

is derived from mouse.

<400> 33

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gtgaaaggag aggacgggg cccatgccga gggtttctcc ttgtttctc agacagctct	180
tgggccaaga ttcagggaga cattgagaca gagcgcttgg cacagaagca gaggggtcag	240
ggcgaagtcc cagggccccca ggcgtggctc tcagggtctc aggccccgaa ggcggtgtat	300
ggattgggaa gtcccagcct tggggattcc ccaactccgc agtttcttt ctccctctcc	360
caacctatgt agggtccttc ttcttgata ctcacgacgc ggacccagg tctactccca	420
ttgggtgtcg ggttccaga gaagccaatc agtgcgtcg cggtcgctgt tctaaagtcc	480
gcacgcaccc accgggactc agattctccc cagacgccga ggtggccgt catggccccc	540
cgaaccctcg tcctgtact ctcggggcc ctggccctga cccagacctg ggcaggtag	600
tgcgggtcg ggagggaaac ggcctctgcg gggagaagca agggggccgc ctgggggggg	660
cgcaagaccc gggagccgc gccgggagga ggtcgccgc ggtctcagcc actcctcgtc	720
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tccacccca agccgcggg ccccgagacc ttggcccgag gagaggccca ggcgcctaa	1140
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gaaagggcag agtctgatgtt ttctctcagc ctcctttaga gtgtgtctg ctcataatg	2640
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gaacttccta gtgtcaagat cttcctggaa ctctcacagc ttttcttc acagggtggaa 2760
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acacagggaa ggcctgagcc ttgcctgtc cccaggattt tgagccccca gggctaaaga 3840
tcagagactc ggaattc 3857

<210> 34

<211> 1119

〈212〉 DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: The DNA region from position 1 to position 618 is derived from human, and the DNA region from position 619 to position 1119 is derived from mouse.

<400> 34

atg gcc gtc atg gcg ccc cga acc ctc gtc ctg cta ctc tcg ggg gcc 48
Met Ala Val Met Ala Pro Arg Thr Leu Val Leu Leu Leu Ser Gly Ala
5 10 15

ctg gcc ctg acc cag acc tgg gca ggc tcc cac tcc atg agg tat ttc 96
 Leu Ala Leu Thr Gln Thr Trp Ala Gly Ser His Ser Met Arg Tyr Phe
20 25 30

tcc aca tcc gtg tcc cgg ccc ggc cgc ggg gag ccc cgc ttc atc gcc 144
 Ser Thr Ser Val Ser Arg Pro Gly Arg Gly Glu Pro Arg Phe Ile Ala
 35 40 45

gtg ggc tac gtg gac gac acg cag ttc gtg cggttc gac agc gac gcc 192
 Val Gly Tyr Val Asp Asp Thr Gln Phe Val Arg Phe Asp Ser Asp Ala
 50 55 60

gcg agc cag agg atg gag ccg cgg gcg tgg ata gag cag gag ggg Ala Ser Gln Arg Met Glu Pro Arg Ala Pro Trp Ile Glu Gln Glu Gly	240
65 70 75 80	
 ccg gag tat tgg gac gag gag aca ggg aaa gtg aag gcc cac tca cag Pro Glu Tyr Trp Asp Glu Glu Thr Gly Lys Val Lys Ala His Ser Gln	288
85 90 95	
 act gac cga gag aac ctg cgg atc gcg ctc cgc tac tac aac cag agc Thr Asp Arg Glu Asn Leu Arg Ile Ala Leu Arg Tyr Tyr Asn Gln Ser	336
100 105 110	
 gag gcc ggt tct cac acc ctc cag atg atg ttt ggc tgc gac gtg ggg Glu Ala Gly Ser His Thr Leu Gln Met Met Phe Gly Cys Asp Val Gly	384
115 120 125	
 tcg gac ggg cgc ttc ctc cgc ggg tac cac cag tac gcc tac gac ggc Ser Asp Gly Arg Phe Leu Arg Gly Tyr His Gln Tyr Ala Tyr Asp Gly	432
130 135 140	
 aag gat tac atc gcc ctg aaa gag gac ctg cgc tct tgg acc gcc gcg Lys Asp Tyr Ile Ala Leu Lys Glu Asp Leu Arg Ser Trp Thr Ala Ala	480
145 150 155 160	
 gac atg gcg gct cag atc acc aag cgc aag tgg gag gcg gcc cat gtg Asp Met Ala Ala Gln Ile Thr Lys Arg Lys Trp Glu Ala Ala His Val	528
165 170 175	
 gcg gag cag cag aga gcc tac ctg gag ggc acg tgc gtg gac ggg ctc Ala Glu Gln Gln Arg Ala Tyr Leu Glu Gly Thr Cys Val Asp Gly Leu	576
180 185 190	
 cgc aga tac ctg gag aac ggg aag gag acg ctg cag cgc acg gat tcc Arg Arg Tyr Leu Glu Asn Gly Lys Glu Thr Leu Gln Arg Thr Asp Ser	624
195 200 205	
 cca aag gcc cat gtg acc cat cac agc aga cct gaa gat aaa gtc acc Pro Lys Ala His Val Thr His His Ser Arg Pro Glu Asp Lys Val Thr	672
210 215 220	
 ctg agg tgc tgg gcc ctg ggc ttc tac cct gct gac atc acc ctg acc Leu Arg Cys Trp Ala Leu Gly Phe Tyr Pro Ala Asp Ile Thr Leu Thr	720
225 230 235 240	
 tgg cag ttg aat ggg gag gag ctg atc cag gac atg gag ctt gtg gag Trp Gln Leu Asn Gly Glu Glu Leu Ile Gln Asp Met Glu Leu Val Glu	768
245 250 255	

acc agg cct gca ggg gat gga acc ttc cag aag tgg gca tct gtg gtg 816
 Thr Arg Pro Ala Gly Asp Gly Thr Phe Gln Lys Trp Ala Ser Val Val
 260 265 270

gtg cct ctt ggg aag gag cag tat tac aca tgc cat gtg tac cat cag 864
 Val Pro Leu Gly Lys Glu Gln Tyr Tyr Thr Cys His Val Tyr His Gln
 275 280 285

ggg ctg cct gag ccc ctc acc ctg aga tgg gag cct cct cca tcc act 912
 Gly Leu Pro Glu Pro Leu Thr Leu Arg Trp Glu Pro Pro Pro Ser Thr
 290 295 300

gtc tcc aac atg gcg acc gtt gct gtt ctg gtt gtc ctt gga gct gca 960
 Val Ser Asn Met Ala Thr Val Ala Val Val Val Leu Gly Ala Ala
 305 310 315 320

ata gtc act gga gct gtg gtg gct ttt gtg atg aag atg aga agg aga 1008
 Ile Val Thr Gly Ala Val Val Ala Phe Val Met Lys Met Arg Arg Arg
 325 330 335

aac aca ggt gga aaa gga ggg gac tat gct ctg gct cca ggc tcc cag 1056
 Asn Thr Gly Gly Lys Gly Asp Tyr Ala Leu Ala Pro Gly Ser Gln
 340 345 350

acc tct gat ctg tct ctc cca gat tgt aaa gtg atg gtt cat gac cct 1104
 Thr Ser Asp Leu Ser Leu Pro Asp Cys Lys Val Met Val His Asp Pro
 355 360 365

cat tct cta gcg tga 1119
 His Ser Leu Ala
 370

<210> 35

<211> 372

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: The polypeptide region from position 1 to position 206 is derived from human, and the polypeptide region from position 207 to position 372 is derived from mouse.

<400> 35

Met Ala Val Met Ala Pro Arg Thr Leu Val Leu Leu Ser Gly Ala

Leu Ala Leu Thr Gln Thr Trp Ala Gly Ser His Ser Met Arg Tyr Phe
 20 25 30

Ser Thr Ser Val Ser Arg Pro Gly Arg Gly Glu Pro Arg Phe Ile Ala
 35 40 45

Val Gly Tyr Val Asp Asp Thr Gln Phe Val Arg Phe Asp Ser Asp Ala
 50 55 60

Ala Ser Gln Arg Met Glu Pro Arg Ala Pro Trp Ile Glu Gln Glu Gly
 65 70 75 80

Pro Glu Tyr Trp Asp Glu Glu Thr Gly Lys Val Lys Ala His Ser Gln
 85 90 95

Thr Asp Arg Glu Asn Leu Arg Ile Ala Leu Arg Tyr Tyr Asn Gln Ser
 100 105 110

Glu Ala Gly Ser His Thr Leu Gln Met Met Phe Gly Cys Asp Val Gly
 115 120 125

Ser Asp Gly Arg Phe Leu Arg Gly Tyr His Gln Tyr Ala Tyr Asp Gly
 130 135 140

Lys Asp Tyr Ile Ala Leu Lys Glu Asp Leu Arg Ser Trp Thr Ala Ala
 145 150 155 160

Asp Met Ala Ala Gln Ile Thr Lys Arg Lys Trp Glu Ala Ala His Val
 165 170 175

Ala Glu Gln Gln Arg Ala Tyr Leu Glu Gly Thr Cys Val Asp Gly Leu
 180 185 190

Arg Arg Tyr Leu Glu Asn Gly Lys Glu Thr Leu Gln Arg Thr Asp Ser
 195 200 205

Pro Lys Ala His Val Thr His His Ser Arg Pro Glu Asp Lys Val Thr
 210 215 220

Leu Arg Cys Trp Ala Leu Gly Phe Tyr Pro Ala Asp Ile Thr Leu Thr
 225 230 235 240

Trp Gln Leu Asn Gly Glu Glu Leu Ile Gln Asp Met Glu Leu Val Glu
 245 250 255

Thr Arg Pro Ala Gly Asp Gly Thr Phe Gln Lys Trp Ala Ser Val Val
 260 265 270

Val Pro Leu Gly Lys Glu Gln Tyr Tyr Thr Cys His Val Tyr His Gln
 275 280 285

Gly Leu Pro Glu Pro Leu Thr Leu Arg Trp Glu Pro Pro Pro Ser Thr
 290 295 300

Val Ser Asn Met Ala Thr Val Ala Val Leu Val Val Leu Gly Ala Ala
 305 310 315 320

Ile Val Thr Gly Ala Val Val Ala Phe Val Met Lys Met Arg Arg Arg
 325 330 335

Asn Thr Gly Gly Lys Gly Gly Asp Tyr Ala Leu Ala Pro Gly Ser Gln
 340 345 350

Thr Ser Asp Leu Ser Leu Pro Asp Cys Lys Val Met Val His Asp Pro
 355 360 365

His Ser Leu Ala
 370

<210> 36

<211> 36

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR primer

<400> 36

cccaagctta ctctctggca ccaaactcca tgggat

36

<210> 37

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR primer

<400> 37

cgggagatct acaggcgatc aggttaggcgc

30

<210> 38

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR primer

<400> 38

cgcaggctct cacactattc aggtgatctc

30

<210> 39

<211> 38

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR primer

<400> 39

cggaattccg agtctctgat ctttagccct gggggctc

38

<210> 40

<211> 29

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR primer

<400> 40

aggacttgga ctctgagagg cagggtctt

29

<210> 41

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR primer

<400> 41

catagcccc tcctttcca cctgtgagaa

30

<210> 42

<211> 23

<212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: PCR primer

<400> 42
 cgaaccctcg tcctgctact ctc

23

<210> 43
 <211> 23
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: PCR primer

<400> 43
 agcatagtcc cctcctttc cac

23

<210> 44
 <211> 39
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: PCR primer

<400> 44
 cccaaggcttc gccgaggatg gccgtcatgg cgccccgaa

39

<210> 45
 <211> 41
 <212> DNA
 <213> Artificial Sequence

<220>
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<400> 45
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41

<210> 46
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<212> PRT
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<220>
<223> Synthetic Peptide

<400> 46
Pro Tyr Val Ser Arg Leu Leu Gly Ile
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<210> 47
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
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<400> 47
Ile Met Pro Lys Ala Gly Leu Leu Ile
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<210> 48
<211> 9
<212> PRT
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<220>
<223> Synthetic Peptide

<400> 48
Thr Tyr Ala Cys Phe Val Ser Asn Leu
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<210> 49
<211> 10
<212> PRT
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<220>
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<400> 49
Gln Tyr Ser Trp Phe Val Asn Gly Thr Phe
5 10

<210> 50
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<212> PRT
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<220>
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<400> 50
Ala Gln Tyr Ile Lys Ala Asn Ser Lys Phe Ile Gly Ile Thr Glu Leu
1 5 10 15

<210> 51
<211> 9
<212> PRT
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<400> 51

Ala Leu Leu Pro Ala Val Pro Ser Leu
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<210> 52
<211> 9
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<220>
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1 5

<210> 53
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<220>

<223> Description of Artificial Sequence: Synthetic Peptide

<400> 53

Arg Phe Phe Pro Asn Ala Pro Tyr Leu
1 5

<210> 54

<211> 9
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<223> Description of Artificial Sequence: Synthetic Peptide

<400> 54

Arg Trp Phe Pro Asn Ala Pro Tyr Leu
1 5

<210> 55

<211> 9
<212> PRT
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic Peptide

<400> 55

Arg Phe Pro Gly Val Ala Pro Thr Leu
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<210> 56

<211> 9
<212> PRT
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<223> Description of Artificial Sequence: Synthetic Peptide

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Arg Met Pro Gly Val Ala Pro Thr Leu
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<210> 57

<211> 9

<212> PRT

<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic Peptide

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Arg Trp Pro Gly Val Ala Pro Thr Leu

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<210> 58

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic Peptide

<400> 58

Arg Phe Pro Ser Cys Gln Lys Lys Phe

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<210> 59

<211> 9

<212> PRT

<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic Peptide

<400> 59

Arg Met Pro Ser Cys Gln Lys Lys Phe

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<210> 60

<211> 9

<212> PRT

<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic Peptide

<400> 60

Ala Phe Leu Pro Ala Val Pro Ser Leu

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<210> 61
<211> 9
<212> PRT
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1 5

<210> 62
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<212> PRT
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<400> 62
Ala Trp Leu Pro Ala Val Pro Ser Leu
1 5

<210> 63
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<400> 63
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<210> 64
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1 5

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<210> 66
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1 5

<210> 67
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<212> PRT
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Arg Tyr Pro Ser Ala Gln Lys Lys Phe
1 5

<210> 68
<211> 9
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<220>

<223> Description of Artificial Sequence: Synthetic Peptide

<223> Xaa at position 5 stands for Abu.

<400> 68

Arg Tyr Pro Ser Xaa Gln Lys Lys Phe

1

5